

Program parthyd.c

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/* Routine to assess relative particle hydration */
void parthyd(){
    int norig[50000],nleft[50000];
    int ix,iy,iz;
    char valmic,valmicorig;
    int valpart,partmax;
    float alpart;
    FILE *phydfile;

    /* Initialize the particle count arrays */
    for(ix=0;ix<50000;ix++){
        nleft[ix]=norig[ix]=0;
    }
    phydfile=fopen(phrname,"a");
    fprintf(phydfile,"%d %f\n",cycnt,alpha_cur);

    partmax=0;
    /* Scan the microstructure pixel by pixel and update counts */
    for(ix=0;ix<SYSIZE;ix++){
        for(iy=0;iy<SYSIZE;iy++){
            for(iz=0;iz<SYSIZE;iz++){

                if(micpart[ix][iy][iz]!=0){
                    valpart=micpart[ix][iy][iz];
                    if(valpart>partmax){partmax=valpart;}
                    valmic=mic[ix][iy][iz];
                    if((valmic==C3S)|| (valmic==C2S)|| (valmic==C3A)|| (valmic==C4AF)){
                        nleft[valpart]++;
                    }
                    valmicorig=micorig[ix][iy][iz];

                    if((valmicorig==C3S)|| (valmicorig==C2S)|| (valmicorig==C3A)|| (valmicorig==C4AF))
                }{
                    norig[valpart]++;
                }
            }
        }
    }
}
```

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}

/* Output results to end of particle hydration file */
for(ix=100;ix<=partmax;ix++){
    alpart=0.0;
    if(norig[ix]!=0){
        alpart=1.-(float)nleft[ix]/(float)norig[ix];
    }
    fprintf(phydfile,"%d %d %d %.3f\n",ix,norig[ix],nleft[ix],alpart);
}
fclose(phydfile);
}
```